

## Energy Collaborative Analysis Initiative Workshop 2006 Activity Status

Analysis Topic and Activities	Lead Organization	Lead Analysts(s)	Participants	Status Update
<b>A) Enhance R&amp;D and Deployment Portfolio Analysis Tools</b>				
1. Identify existing tools and the current framework for analysis; share in web forum	NREL	Lead Needed	EPA, states	
2. Create a Portfolio Analysis Center (clearinghouse of info. and tools); kick-off meeting	DOE – Office of Science	Bill Valdez	DOE National Labs, NYSERDA	(1/07) Bill Valdez, DOE – Office of Science <ul style="list-style-type: none"> <li>Expressed the need for an independent analysis center</li> <li>Suggests convening a small group of analysts, such as a LWG, to further discuss this possibility</li> </ul>
3. Identify standards of excellence for including risk, value and uncertainty in portfolio analysis	DOE – EERE - PAE	Lead Needed	NYSERDA, DOE National Labs, DOE – Office of Science	

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<b>B) Improve Deployment Partnerships between Industry and Government</b>				
1. Call to ID current work; Evaluate successful R&D-Deployment models; scoping paper to capture best practices; consider workshop	NYSERDA, CESA	Paul DeCotis (NYSERDA), Jennifer DeCesaro (CESA)	CEC, DOE-PI, PNNL, NETL, states, national lab tech transfer offices, STAC/ASERTTI and SEO	<p>(1/07) Paul DeCotis (NYSERDA) and Jennifer DeCesaro (CESA):</p> <ul style="list-style-type: none"> <li>Held a conference call in November to discuss purpose and anticipated outcomes.</li> <li>Identified a next step to solicit information on R&amp;D deployment programs and compile a "guidebook" of state R&amp;D program models for distribution to the group and to use as a basis for further discussions.</li> <li>Conducted a survey via email to collect information.</li> </ul> <p>(3/07) Paul DeCotis (NYSERDA) and Jennifer DeCesaro (CESA):</p> <ul style="list-style-type: none"> <li>As of March 2007, two of the interested parties responded to the R&amp;D survey prepared by NYSERDA and CESA. Absent active participation and continued interest by Collaborative members this activity should be discontinued.</li> </ul>
2. Incorporate deployment into R&D planning; Develop best practices checklist (from #1) on deployment methods and decision tools	DOE – EERE - PAE, NREL	Lead Needed	EPRI, CEC, NETL, CESA	
3. Improve policy mech. and state-federal links; DOE consider inviting states into planning, sending staff for state plans	DOE – EERE, States	Lead Needed	CEC, CESA, NREL – invite NASEO and ASERTTI	
4. Communicate with intended users of info.; develop common definitions and focus results on audience (surveys, interviews and focus groups)	Leader Needed	Lead Needed	Participants Needed	

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C) Better Representation of Energy Technologies and Demand Response in Energy Models				
1. Gather empirical info on evolution of technologies and markets; create tech. maturation and saturation curves; develop tech. characterizations	NREL (for EERE), NETL (for fossil fuels)	Lead Needed	DOE - EIA	
2. Quantify the potential for new/emerging technologies; clarify terminology; consider incorporation of new tech into models	DOE – EERE/NREI, DOE-EIA, NETL	Walter Short (NREL)	Participants Needed	(1/07) Walter Short: <ul style="list-style-type: none"> <li>Discussion has taken place between NREL and NETL regarding this activity.</li> <li>NETL currently runs NEMS while NREL uses both NEMS (through a contractor) and WinDS. Both models could be improved relative to their treatment of renewable and fossil energy.</li> </ul>
3. Develop new empirical work on demand elasticities; start with call to scope out work; incorporate new data into models	DOE - EERE	Lead Needed	EPRI?, DOE-EIA, NETL?	
4. Improve the link between data-producers and model developers; EPA July workshop on tech. changes in modeling; communicate results	EPA	Lead Needed	Participants Needed	

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D) Better Representation of Regional Technology Characterizations and Transmission Constraints in Energy Models				
1. Inventory existing analysis/ modeling capabilities of organizations, incl.: strengths and weaknesses	DOE – EERE - PAE, NETL		states, CESA, DOE labs, EPA	
2. Share existing GIS datasets, if not proprietary; for proprietary, negotiate multi-party purchase	DOE – EERE – PAE, NREL	Walter Short (NREL)	NETL, states, EPA	<p>(1/07) Walter Short:</p> <ul style="list-style-type: none"> <li>Proposed an effort between NETL and NREL to collaborate on and share GIS data.</li> <li>Both NETL and NREL have GIS capabilities and large amounts of data in GIS format and a collaborative effort to share this data, especially with respect to the issues related to geospatial constraints for coal power generation.</li> <li>Collaboration to identify and interpret the critical data elements is still needed for the modeling of coal plants and renewables would be useful — e.g. water resources, rail capacities, renewable resources, etc.</li> </ul>
3. Call to examine regionality and trans. improvements currently underway in SEDS, NEMS; sensitivity across models	NREL, DOE – EIA, NETL	Walter Short (NREL), Chris Namovicz (EIA), Michael Reed (NETL)	FERC, states, CESA, others?	<p>(1/07) Walter Short:</p> <ul style="list-style-type: none"> <li>NREL has developed a spatial model (GoPipes) capable of optimizing the layout of conversion plants and pipelines/transport to meet loads at minimal costs accounting for economies of scale in both the conversion plant and the pipelines.</li> <li>This tool could be adapted for use in other applications such as LNG terminal/pipeline networks, coal gasification/liquefaction, CO2 sequestration, etc.</li> </ul> <p>(3/07) Chris Namovicz:</p> <ul style="list-style-type: none"> <li>EIA continues to assess restructuring of NEMS electricity market regions. EIA has based its regions on NERC regions/subregions, which have recently undergone significant revision. At the same time, many grid operational and market responsibilities have been assumed by regional transmission organizations (RTOs) or similar entities. EIA is trying to determine which aggregation (new NERC regions or RTO regions) best represents the capacity planning, dispatch, and other power market activities being modeled in NEMS.</li> <li>EIA is developing model constructs for NEMS that will allow a wider variety of electric generation resources (especially renewables) to be built in one region to serve load growth/demand in another region. Structures will be based on current, more limited, inter-regional capacity expansion options within the model, but taking into account regional supply and demand patterns unique to renewable resources.</li> <li>EIA has had preliminary discussions with NREL on developing wind resource “supply curves” based on proximity to demand-centers rather than</li> </ul>

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				based strictly on location of supply. Originally conceived as a proxy representation of inter-regional capacity expansion, this approach may yet offer advantages to the inter-regional capacity expansion approach now being developed by EIA, in terms of potentially more accurate representation of transmission construction costs.
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E) Improve Impact Evaluation Tools: Economic Development, Energy Security, Environmental Impacts and the Integration of the Three				
1. Create a model inventory (econ dev, energy security, env. Impacts) and identify strengths/limitations of each	ACEEE	Skip Laitner	University of California, EPA, DOT, DOE, USDA, FERC, RTOs, HUD, PMAs	<p>(1/07) Skip Laitner:</p> <ul style="list-style-type: none"> <li>Held a workshop in November 2006 on Energy and Economic Policy Models</li> <li>A plan for completing an inventory is now being discussed among workshop participants including representatives from ACEEE, Tufts University, the Pew Climate Center, and Redefining Progress, and the Center for the Applied Study of Economics &amp; the Environment, among others.</li> <li>Preliminary estimates indicate that the effort will require an estimated \$75,000 to complete both the model inventory and a modeling guide for policy makers.</li> <li>Both the inventory and the policy guide will include references to these three policy issues. We anticipate this work to be completed within about 6 months once fully funded.</li> </ul>
2. In report/paper, a full accounting of impacts and identify different methodologies; hold impact evaluation workshop; build central website	ACEEE, NREL	Skip Laitner (ACEEE)	University of California, EPA, DOT, DOE, USDA, FERC, RTOs, HUD, PMAs	<p>(1/07) Skip Laitner:</p> <ul style="list-style-type: none"> <li>Authored a paper, "Improving the Contribution of Economic Models in Evaluating Oil Transition and Climate Change Mitigation Policies," that identifies a set of four different areas of needed improvement and offers suggested ways to handle these issues within economic models.</li> <li>Together with Argonne National Laboratory's Donald Hanson, Laitner coauthored an article for the <i>Energy Journal</i>, "Modeling Detailed Energy-Efficiency Technologies and Technology Policies" within a CGE Framework.</li> <li>ACEEE is planning a series of working papers to be posted as an extension of ACEEE's modeling website.</li> </ul>
3. Identify critical economic factors; hold workshop to define appropriate relationships between factors for use in models	ACEEE	Skip Laitner	University of California, EPA, DOT, DOE, USDA, FERC, RTOs, HUD, PMAs	<p>(1/07) Skip Laitner:</p> <ul style="list-style-type: none"> <li>Authored a paper, "Improving the Contribution of Energy Models." in which he identified a series of critical economic factors impacting modeling results.</li> <li>Held a workshop in November 2006 that provided a number of links and potential collaborations that are beginning to result of more concerted efforts to both identify these critical economic factors and suggested specific data sources and model algorithms that might enable the appropriate implementation in economic policy models.</li> <li>A more complete work plan and inventory will be available through ACEEE in Spring 2007</li> </ul>
4. Build upon model inventory (#1), identify models that need validation; for these,	Leader Needed	Lead Needed	Participants Needed	

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develop validation method; conduce validation				
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<b>F) Improve Policy Analysis Tools and Integration of Information and Tools at State and Federal Levels</b>				
1. Identify and share existing information, tools and resources; e-mail listserv to communicate	DOE – EERE - PAE, NREL	Lead Needed	Include environmentalists and industrial groups	
2. ID lessons learned, develop common methodology; convey applicability of policy tools and impacts for decision-makers	DOE – EERE - PAE, EPA	Dan Loughlin, Denise Mulholland and Steve Dunn (all EPA)	Participants Needed	<p>(1/07) Dan Loughlin and Denise Mulholland:</p> <ul style="list-style-type: none"> <li>EPA is developing a database called "The Clean Energy-Environment Tools and Resources Compendium" of information about tools to evaluate clean energy policies and programs. Anticipate availability: Feb '07.</li> <li>EPA is formulating "A Guidebook for Assessing the Multiple Benefits of Clean Energy" to help state governments analyze the multiple benefits, including the environmental, macroeconomic and energy system benefits, of energy efficiency, renewable energy and clean distributed generation initiatives. Anticipated draft available for peer review in March '07.</li> </ul>
3. ID a way for state and federal modelers to speak regularly; ID/create regional models for state policy issues	Leader Needed	Lead Needed	Participants Needed	
<b>G) Enhance Biofuel Resource Potential and Infrastructure Analysis</b>				
1. ID current efforts; coordinate consistent, vetted biomass supply curves	DOE – EERE - Bioenergy	Zia Haq	USDA – Office of Energy, DOE-EERE-Biomass, DOE-EIA, DOE-EERE-PAE, USDA-USFS, USDA-Agricultural Research Service	<p>(1/07) Zia Haq:</p> <ul style="list-style-type: none"> <li>ORNL and INL are further diving into the Billion Ton Vision to regionalize the data and apply cost info to build supply curves.</li> <li>DOE's bioenergy office is working on industry benchmarking of their R&amp;D portfolio by having an independent consultant look at their R&amp;D portfolio and give chances of success and failure of R&amp;D.</li> </ul>
2. DOE share Biomass Transition Model (July 06 meeting); ID new data, ways to improve model	DOE – EERE - Bioenergy	Zia Haq	USDA – Office of Energy, DOE-EERE-Biomass, DOE-EIA, DOE-EERE-PAE, USDA-USFS, USDA-Agricultural Research Service	<p>(1/07) Zia Haq:</p> <ul style="list-style-type: none"> <li>The model is now being called the Biomass Scenario model.</li> <li>A prototype has been shared and a vetting meeting held in July</li> <li>Further activities to improve the model are being undertaken by DOE's bioenergy office and NREL</li> </ul>



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<b>H) Improve Behavioral Factors in Market/Choice Models and Tools</b>				
1. Meeting to discuss next steps; survey about existing data/models; <b>(DOE-OSc.)</b>	DOE – Office of Science. DOE - EERE	Bill Valdez (DOE – Office of Science)	EPA, DOT	(1/07) Bill Valdez: <ul style="list-style-type: none"> <li>Ongoing discussion regarding the lack of data addressing technology adoption and behavioral factors.</li> <li>Co-chairing an OSTP working group to examine how to improve portfolio analysis.</li> <li>Office of Science is considering behavioral science</li> <li>Developing a system dynamics model in his office – called SE4 (economy, environment, energy and education) - with a component of behavioral science behind it.</li> <li>Holding a workshop on this topic on Feb 8.</li> </ul>
2. Compare analytical methods and identify best practices; ID new data sources <b>(DOE-OSc.)</b>	DOE – Office of Science. DOE - EERE	Bill Valdez (DOE – Office of Science)	EPA, DOT	(1/07) Bill Valdez: <ul style="list-style-type: none"> <li>Had conversations about this with PBA, NIH and Department of Agriculture. No progress beyond discussions</li> </ul>
3. Help OSTP direct NSF funds; convene a behavioral specialist workshop <b>(DOE-OSc.)</b>	DOE – Office of Science, OSTP, NREL	Bill Valdez (DOE – Office of Science)	DOT, DOE-EIA, DOE-EERE, DOD, EPA, National labs	(1/07) Bill Valdez: <ul style="list-style-type: none"> <li>There are funds available for behavioral science modeling and research and interested parties, including academicians and consultants can contact him to discuss how to apply for funding</li> <li>Enthusiastic about holding a behavioral science workshop, needs collaborator support</li> </ul>
Analysis not specifically id'd at the Workshop but related to the topic	DOE – EERE and FE	Andy Kydes (EIA)	NA	(3/07) EERE along with FE will co-sponsor a workshop for EIA on decision rules and investment behavior in different energy sectors.
Analysis not specifically id'd at the Workshop but related to the topic	DOE – Office of Science. DOE - EERE	Bill Valdez (DOE – Office of Science)	NA	(3/07) Report published on “Examining Hydrogen Transitions” by Steve Plotkin of ANL and is posted on ECAI website.